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MING SHILU AS EVIDENCE OF DEVOICING OF VOICED OBSTRUENTS IN SIAMESE[1]

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Abstract

Devoicing of Voiced Obstruents (DVO) was part of a transformative series of sound changes that characterised all the Tai languages: the original voiced stops became either aspirated or unaspirated when devoiced. Although previous studies show that they occurred before the 17th century (Harris, 1992; Pittayawat 2016), their precise dating is still unclear. While Brown (1965) and Chamberlain (1991) hold that DVO occurred prior to 13th Century, Shintani (1974) and Gedney (1989 [1978]) place it around 14th-17th Century. To arrive at the chronology of the sound change, I examine transcriptions of Siamese personal names in *The Veritable Records of the Ming Dynasty* (Míng Shí Lù – MSL), using *Quasi-Early Nanjing Mandarin* pronunciation of the Chinese characters as the basis for sorting the correspondence. A careful analysis reveals that the Siamese original voiced stops started to be transcribed by the Chinese original voiceless aspirated stops in 1440s. This became prominent after 1480s, suggesting a completion of DVO by that time. The transcription patterns of the Siamese original voiced stops though imply a gradual transition from original voiced to breathy stops, and eventually to voiceless aspirated stops.

Keywords: Thai, Chinese, Historical Phonology, Philology, Ming Dynasty, Ayutthaya
ISO 639-3 codes: tha, zho, suji,

1. Introduction

Interestingly, all modern Tai dialects share two common features simultaneously. On the one hand, they are rich in tonal contrast, usually possessing around five to six tones[2] on syllables with final sonorants (final nasals, final glides, or an open syllable without a final consonant), and about two to four tones on syllables ending in stops. On the other hand, their consonant inventory usually lacks a full-fledged voicing distinction: all sonorants are voiced while obstruents are usually voiceless, with two voiced stops at most[3]. From a comparative point of view, however, the two phenomena are but two sides of the same coin: they resulted from the same process. The Comparative Method led us to the reconstruction of a voicing distinction among the initial consonants and 3+1 tonal contrasts for the

[1] This paper was a section of an oral presentation at the 28th Annual Meeting of the Southeast Asian Linguistics Society at Wenzao Ursuline University of Languages, Kaohsiung, Taiwan, on the 17th of May, 2018, under the title Devoicing of Voiced obstruents& Tonal Development in Siamese as attested in Chinese sources. The URL is: https://www.academia.edu/40629016/Devoicing_of_Voiced_obstruents_and_Tonal_Development_in_ Siamese?source=swp_share.

[2] However though, there are a certain amount of Tai dialects with as few as four tones due to further merger of some of the original six tones, such as Chamberlain (1975)'s Yo, Kaleung, Korat, and Phuthai.

[3] There are reports on Central Tai dialects which possess 3-4 way contrast in stops in terms of aspiration and voicing, but no contrasts at all among sonorants, such as Pittayaporn & Kirby (2017) and L-Thongkum (1997).

proto-language (Li, 1977; Gedney, 1989 [1978]; Pittayaporn, 2009). According to Haudricourt (1954), Brown (2007 [1965]), and Li (1977) among others, those 3+1 pre-existing tones most commonly gained binary allophonic variants from the laryngeal setting of the syllable onset, namely between the voiced and the voiceless. Therefore, there were two redundant cues at one point in time, namely the voicing contrast on one hand, and the pitch-contour contrast on the other hand. Eventually, the voicing contrast was eliminated in favor of the tonal contrast, thereby phonemicizing the allophonic variants of the pre-existing tones. Subsequent mergers among the split tones and how voiced stops devoiced to voiceless stops further complicated Tai dialects: without aspiration in a lot of dialects, but with aspiration in fewer dialects with a lot more speakers (Brown, 2007 [1965]; Chamberlain, 1975; 1991; Hartmann, 1980). The merger of voiced and voiceless obstruents, as part of this sound change, is called *devoicing of voiced obstruents* - DVO.

The precise dating of the DVO has never been fully established due to the lack of empirical data and proper methodology. Nonetheless, two conflicting hypotheses prevail. The first view is shared by Brown (2007 [1965]) and Chamberlain (1975), who considered DVO to have taken place prior to 13th century. Chamberlain (1975) even used the reflex of DVO as one of the criteria in subgrouping the Central-Southwestern Tai languages. On the contrary, Shintani (1974), Li (1977), and Gedney (1989 [1978], 1991) shared the alternative view that DVO took place between the 14th and the 17th centuries. This view is indirectly supported by the completion of DVO by the 17th century, as indicated from both European records on Siamese language from that time (Harris, 1992), and the local text called *Chindamani* (Siamese: จินดามณี /cin0.da:0.ma.ni:0/) from the same period with descriptions of homophonous pairs between words of tone B of the former voiced initials and tone C of the original voiceless initials (Pittayaporn, 2016). Moreover, the extensive examination on the Sino-Siamese Manual of Translation (Chinese: 暹羅舘雜字 Xiānluóguǎn Zázì, literally *The Miscellaneous Vocabulary from the Department/Bureau of Siamese*) by Shintani (1974), Davidson (1987), and Endo (2009) confirm an earlier completion of DVO by the late 16th century, with Shintani (1974) estimating the occurrence of DVO around 14th-15th century.

Fortunately, a Chinese historical source that may shed light on this issue is the *Veritable Records of the Ming Dynasty* (Chinese: 明實錄 Míng Shílù - henceforth MSL), a potential candidate for locating the time period of DVO, as it is one of the few pieces of Chinese evidence contemporary to the Ayutthaya period, perfectly fitting the period proposed by Shintani (1974), Li (1977), and Gedney (1989 [1978], 1991). Geoff Wade made his English translation of MSL accessible in an online digitized format. Although MSL was used by Phumisak (2004 [1983]) as one of the primary sources for Thai historiography, no study has been carried out to analyzed it from a Tai linguistic perspective. The result of this study will definitely give new understanding to the phonological development of the Siamese language. This study follows the methodology of Yongbunkeut (1967), Shintani (1974), Davidson (1987), and Endo (2009), who carefully examined the phonetic transcription of Siamese vocabularies in Chinese characters in the *Sino-Siamese Manual of Translation* of the 16th century by establishing the correspondence between the phonemic value of each Chinese character and the syllables of the Siamese words they transcribed. If the second hypothesis as endorsed by Gedney (1989 [1978]) and Shintani (1974) is correct, the period when DVO took place in Siamese should be found in the Chinese transcription of the Siamese personal names and feudal titles between 14th-17th century. Eventually, this study also discusses the transitional state of the original voiced stops inherited from Proto-Southwestern Tai prior to their devoicing to voiceless aspirated stops as in modern Siamese, based on the transcription method of the supposedly voiced stops.

2. What is devoicing of voiced obstruents?

Devoicing of voiced obstruents is part of a collective set of sound changes that took place across languages in China and Mainland Southeast Asia where the number of consonant phonemes decreased due to the historical loss of voicing distinctions which were compensated by two- or three-way splits of the original tone phonemes (Brown, 2007 [1965]; Li, 1977; Gedney, 1989 [1978]; Pittayaporn, 2009). This set of sound changes, or as Brown (2007 [1965]) called the "Great Tone Split" analogous to the English "Great Vowel Shift", will be simply referred to as *(a/the) tone split* in this study. According to the generally accepted model, the proto-language initially possessed voicing distinction in both obstruent and sonorant onsets and 3 contrastive tones labeled Proto-Tone *A, *B, and *C for

syllables with final sonorants(Brown, 2007 [1965]; Li, 1977; Gedney, 1989 [1978]; Pittayaporn, 2009; Pittayaporn & Kirby, 2017). While no tonal contrast is generally assumed on closed syllables with final stops, they are usually labeled as Tone *D (Li, 1977; Gedney, 1989 [1978]). All modern dialects subsequently reached their current state through successive steps, as presented in Figure 1.

***Figure 1*:** *Process of Tonesplit & Loss of Voicing Contrast, adapted from Pittayaporn* (*2009: 248*)

<table>
<tr><th rowspan="2"></th><th colspan="4">Consonant Phonemes</th><th rowspan="2">Tone Phonemes</th></tr>
<tr><th>Sonorants</th><th colspan="3">Obstruents</th></tr>
<tr><td rowspan="2">0) Original State</td><td>*^{h}m</td><td>*p^{h}</td><td>*p</td><td>*ɓ</td><td rowspan="2">*A *B *C *D</td></tr>
<tr><td>*m</td><td colspan="3">*b</td></tr>
<tr><td rowspan="2">1) Emergence of allophonic variants</td><td>*^{h}m</td><td>*p^{h}</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td>*m</td><td colspan="3">*b</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">2) Voicing of voiceless sonorants
&
3) Primary tone split</td><td rowspan="2">*m</td><td>*p^{h}</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td colspan="3">*b</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">4) Devoicing of voiced obstruents</td><td rowspan="2">*m</td><td>*p^{h}</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td colspan="3">*b > *p(^{h})</td><td>*A2 *B2 *C2 *D2</td></tr>
</table>

Eventually, each dialect lost the contrastive voicing of consonants while becoming rich in tone phonemes instead, with the resulting tones further merged or split in different dialects. For example, a Secondary split of Tone D according to the vowel length, regardless of whether the vowel length contrast was retained or not, took place in a lot of Tai dialects, while Siamese, Shan, and Red Tai independently went through the merger of Tone C of the original voiceless initials and the Tone B of the original voiced initials. However, not all Tai dialects reached step 4 as some Central Tai dialects are reportedly for their retention of the original voiced stops despite the tone split (Haudricourt, 1960; Gedney, 1991; Chamberlain, 1991). For instance, the Tai dialect of Cao Bằng (Pittayaporn & Kirby, 2017) and three Dai Thổ dialects at Wenshan and Maguan counties in the Yunnan Province of China (L-Thongkum, 1997) conservatively retain four ways contrast in stop consonants. In case of the Cao Bằng Tai, its implosives became simple voiced while the original voiced stops acquired additional breathiness. In addition, most dialects that went through stage 4 differ in how the original voiced stops devoiced: whether aspiration arose at the end of the process (Brown, 2007 [1965]; Chamberlain, 1975; 1991; Hartmann, 1980). As opposed to most dialects, a Northern Tai dialect spoken by the Zhuang people at Sanfang, Guangxi Province of China, shows in addition to the primary split of the pre-existing tone phonemes an unusual merger of the (pre-)glottalized/implosives phonemes with the original voiced stops into prenasalised-voiced stops (Wei & Edmonson, 1997).

As a result of DVO, modern Siamese possess only three ways contrast among stop consonants, instead of the original four ways contrast in Proto-Southwestern Tai. The whole set of the original voiced stops became the *secondary aspirated stops*, i.e. merging phonetically with the original voiceless aspirated stops or the *primary aspirated stops*, while contrasting tonally due to the tone split. Moreover, the original implosives became simple voiced stops. Thenceforth in this paper unless specified otherwise, the original voiced stops which became voiceless aspirated will be referred to as *secondary aspirated stops*, whereas the original implosives will be called *voiced stops* to conform with the modern pronunciation. Table 1 demonstrates the interconnected relationship between the change of stops from Proto-Southwestern Tai to Modern Siamese and the split of the original Proto-Southwestern Tai tones.

This means that according to Table 1, the modern tone phonemes are quite suggestive of the original voicing, for instance, any syllables with Tone 1 (B123 or D123), or Tone 3 (C4 or DS4), originally had voiceless initial, or voiced initial, respectively. Based on this model, we can correctly predict which of the modern aspirated stops /k^{h}/, /c^{h}/, /t^{h}/, /p^{h}/ originated from the original voiceless aspirated stops or the original voiced stops: Tone 5 (A1) suggests original voiceless aspirated stops while Tone 0 (A234) suggests the original voiced stops, hence the dichotomy between the *primary aspirated stops* and the *secondary aspirated stops*. It is due to the aforementioned merger of the tones B4 and C123 which prevents the correct prediction of the original form of the words with Tone 2 with

initial sonorants, fricatives, or aspirated stops: they either go back to the original voiceless plus Tone C or the original voiced plus Tone B.

Table 1: *Post tone split relation between consonant and tones in Modern Siamese*

<table>
<tr><th rowspan="2">Gedney (1972)'s Notation</th><th rowspan="2">Consonants</th><th colspan="3">Live Syllable (Non-checked Syllable)</th><th colspan="2">Dead Syllable (Checked Syllable)</th></tr>
<tr><th>A</th><th>B</th><th>C</th><th>Long Vowel (DL)</th><th>Short Vowel (DS)</th></tr>
<tr><td rowspan="3">1</td><td>*ʰŋ, *ʰɲ,*ʰn, *ʰm, *ʰr, *ʰl, *ʰw > ŋ, j, n, m, h, l, w</td><td rowspan="3">5 (A1)</td><td rowspan="4">1 (B123)</td><td rowspan="4">2 (B4& C123)</td><td colspan="2" rowspan="4">1 (D123=B123)</td></tr>
<tr><td>h, *χ & *x > kʰ, s, f</td></tr>
<tr><td>*q > kʰ</td></tr>
<tr><td>2</td><td>k, c, t, p</td><td rowspan="3">0 (A234)</td></tr>
<tr><td>3</td><td>ʔ, *ˀj > j, *ɗ > d, *ɓ > b</td><td rowspan="3">2 (B4& C123)</td><td rowspan="3">3 (C4)</td><td rowspan="3">2 (DL4=B4&C123)</td><td rowspan="3">3 (DS4=C4)</td></tr>
<tr><td rowspan="2">4</td><td>ɲ, ɲ > j, n, m, j, r, l, w</td></tr>
<tr><td>*ɣ, *z, *v > (x >)kʰ, s, f</td></tr>
<tr><td></td><td>*g, *ɟ, *d, *b > kʰ, cʰ, tʰ, pʰ</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Tone split is both an articulatory and a perceptually motivated change since it is the natural articulation that created the allophonic variant while speakers could have replaced a voicing distinction in favor of those allophonic variants as the primary cue of contrast (Abramson & Erickson, 1978). Thus, the voicing distinction was eliminated somehow while the perceptual saliency of various tone phonemes arose in place of what was originally a voicing contrast, hence the term "tone split". Since the whole change was discovered through the Comparative Method, any proposals regarding the approximate period of each step or the whole process remain at best speculative and await further verification by empirical evidence.

As mentioned earlier, there are two conflicting hypotheses concerning the dating of the devoicing of voiced obstruents: 1) prior to the 13th century, and 2) between the 14th and the 17th centuries. The first hypothesis was advocated by Brown (2007 [1965]), who was among the first to explain the phonetic motivation of the change and coined the term "Great Tone Split" that prevails until now. His approximation of the whole changes, including DVO as the final step, was "nearly a thousand years ago". He noted, however, that his approximation is still rather tentative, not to be taken as either absolute or definite answer as happened in the following decades. Another advocate for the first hypothesis was Chamberlain (1975, 1991), who maintained that devoicing of voiced obstruents predates the sub-branching within southwestern Tai. His proposal was based on the geographical isogloss between the unaspirated and the aspirated Tai dialect groups, with each group having their own distinct common ancestor in his opinion. In contrast, Gedney (1991) maintained that this is best viewed as an areal feature, neither an indicator of genetic relationship nor criterion for subgrouping. In support of Gedney (1991)'s view, it is evident that DVO did not took place in all dialects, as 4-way contrast in stop consonants is most recently reported for the Central Tai dialect of Cao Bằng in Pittayaporn & Kirby (2017)'s study, although the conservatism of this particular dialect was reported since Haudricourt (1960).

Contrary to both Brown (2007 [1965]) and Chamberlain (1975, 1991), Li (1977) was the first to state that at the very least in Siamese, the voicing distinction was still maintained and that the tones had not split, as reflected from the writing system. In support of Li (1977)'s view, Gedney (1989 [1978]), based on a careful examination of Siamese classical literary works from the Ayutthaya period, suggested that what 17th century poets labeled as deliberate mistakes made by 14th-15th century poets to satisfy the schematic requirements of a Siamese verse form called Khlong (Siamese: โคลง /kʰloːŋ0/) was in fact an etymologically correct usage of each word at the time. He saw no other explanation but that devoicing of voiced obstruents must have occurred during the Ayutthaya period (14th century-17th century. In line with Li

(1977) and Gedney (1989 [1978]), Shintani (1974) examined the Sino-Siamese Manual of Translation compiled during the Ming Dynasty in the 16th century, and not only confirmed that devoicing of voiced obstruents was completed by the 16th century, but also speculated that it must have taken place between 14th-15th century.

3. The veritable records of the Ming Dynasty

This study is enabled by 2 historical facts. The first fact is the concurrent existence of Ayutthaya and the Ming Dynasty: 1351-1767 AD for the former (Sukhapanich, 2002) and 1368-1644 AD for the latter (Goodrich, 2002; Wade, 2000). The second fact is the commerce and diplomatic relation between Ayutthaya and the Ming Dynasty, especially during the early years (Phumisak, 2004 [1983]; Manitpisitkul, 2002). The earliest Chinese reference of Siam (Chinese: 暹 Xiān) and Lavo (Chinese: 羅斛 Luóhú) can be dated to towards the end of the Song Dynasty in the late 13th century (Phumisak, 2014 [1981]; Wade, 2000; Phirom-anukool, 2016). Subsequently in the early 14th century, a Yuan dynasty record stated that the two polities merged (Phumisak, 2004 [1983]; 2014 [1981]; Wade, 2000). The resulting state was called *Xian-Luohu* (Chinese: 暹羅斛 Xiān-Luóhú) or just *Xian-Luo* by China until the name was changed to Thailand (Chinese:泰國 Tàiguó) towards mid-20th century (Duan, 1994; Baker & Phongpaichit, 2014). As the successor to Siam and Lavo, Ayutthaya continued the relationship with China since the beginning of the Ming dynasty in the late 14th century, having sent a total of 101 envoys, approximately once every 2-3 years (Manitpisitkul, 2002). Early Ayutthaya period in particular saw a close relationship between Siam and the Ming dynasty: 24 envoys during 1370-1388 AD, approximately every year and a quarter, and 32 envoys during 1388-1424 AD, roughly almost once every year. One of the emperors was so pleased that he personally praised the loyalty of the Siamese King as "*worthy and virtuous"* (Wade, 2000). Since such a close contact produced a great deal of documentation, the likelihood of finding the evidence for Siamese devoicing of voiced obstruents in the Chinese records from this period is high.

The *Veritable Records of the Ming Dynasty* (Chinese: 明實錄 Míng Shílù - MSL) is a dynastic record of each Ming emperor, compiled upon his death on the basis of the contemporary sources produced within those reigns (Wade, 2000). The narration in the MSL is precisely dated to which year of which reign, month, and day such as the *2nd Year of Hong-wu, Month 5, Day 20*, for example. Foreign names found in MSL are inevitably transcribed into Chinese characters and require careful interpretation, for example, the name of the Siamese king found in 1453 AD was transcribed as 把囉藍米孫剌 *Bǎluō Lánmǐsūnlái*. This transcription most likely reflects the Siamese name *Brăḥ Rāmesvarrāj* /pʰraʔ3.ra:0.me:0.suən4.ra:t2/ (Siamese: พระราเมศวรราช) (Wade, 2000; 2005; Phongsripian, 2017), since its dating corresponded to the reign of King *Brăḥ Paramaṯrailokanārth* /pʰraʔ3.6ɔ.ro.mə.traj0.lo:k2.kə.na:t2/ (Siamese: พระบรมไตรโลกนารถ), whose former title as a crown prince matches the transcription. Its level of accuracy was often praised by historians to be unparalleled to other dynasties' records of the same kind (Prombun, 1985; Wade, 2000; Phongsripian, 2017). The MSL continuously recorded events from 1369 AD until 1643 AD, spanning almost three centuries. Unfortunately, MSL suffered understudy chiefly because of its own size (Wade, 2000).

4. Methodology

As the aim of this study is to seek direct evidence of DVO through an examination of the correspondence between the Siamese secondary aspirated stops (originally voiced) and the Chinese characters used for their transcription, this study makes use of MSL, a set of documents containing the name of the Siamese kings and the officials (envoys and interpreters alike) sent to China on diplomatic mission from the 14th-17th century. All the data are taken directly from Southeast Asian in the Ming Shi-lu: An Open Access Resource (http://www.epress.nus.edu.sg/msl/introduction). The website provides the English translation of the MSL by Geoff Wade. Every Chinese transcription for name of the people from Siam, whether the native Siamese or foreigners hired by Siam, were first collected and interpreted for possible Siamese equivalence. On one hand, the transcription of the name Ayutthaya and the kings' names usually have their exact equivalence in the Siamese royal chronicle. On the other hand, the transcription of the Siamese envoys' names does not have exact equivalence in the Siamese royal chronicle; the transcriptions are therefore broken down by syllables to find recognisable

elements. As such, all the transcriptions are categorized into 5 groups based on the completeness of the interpretation. To ensure the validity of the results, I decided to analyze the *Securely Interpreted* transcriptions alone, while excluding the other groups of transcriptions.

First of all, the *Securely Interpreted* transcriptions refer to transcriptions with agreement among scholars on their interpretation such as transcription #13 昭祿群膺 *Zhāo Lùqúnyīng* from 1374 AD for *Cau² Nagar Indr* /ca:w2.naʔ3.kʰɔ:n0.ʔin0/ (Siamese: เจ้านครอินทร์). Transcriptions in this group also include transcriptions with dispute between Wade (2000, 2005) and Phongsripian (2017), but one of the proposals is supported by the Chinese pronunciation such as transcription #57 奈注德事剃 *Nài Zhùdéshìtì* from 1427 AD for *Nāy Joṭikśreṣṭhī* /na:j0.cʰo:0.tɯk1.se:t1.tʰi:4/ (Siamese: นายโชฏิกเศรษฐี). Secondly, the *Partially Interpreted* transcriptions refer to transcriptions which I find, even with the aid of the Chinese pronunciation, as much troubles interpreting as the previous scholars such as transcription #16 詔勃羅局 Zhào Bóluójú from 1375 AD for *Cau² Brăḥ X* /ca:w2.pʰraʔ3. ? / (Siamese: เจ้าพระ x). Also included are those whose proposed interpretations are not supported by the Chinese pronunciation so I followed previous scholars in interpreting only some parts such as transcription #5 參烈思獰 *Shēnliè Sīníng* from 1373 AD for *Samtec X X* /som4.det1. ? ? / (Siamese: สมเด็จ x x). Thirdly, the *Tentatively Interpreted* transcriptions are transcriptions with either disagreement among scholars on how to interpret or left partially interpreted so I personally interpreted them based on the counter-checking with the feudal titles attested from *the Law of the Three Seals*, for example transcription #32 柰斯勿羅者 *Nài Sīwùluózhě* from 1397 AD for *Nāy Samudr Rājā* /na:j0.sə.mut1.ra:0.cʰa:0/ (Siamese: นายสมุทรราชา).

The last two groups of transcription are the ones intended to be discarded from the analysis in the first place. On one hand, transcriptions which scholars have identified as non-Siamese names are not interpreted, such as Chinese names 陳子仁 *Chén Zǐrén* from 1381 AD and 李得聰 *Lǐ Décōng from* 1427 AD, and Muslim names 阿哈麻 *Āhāmá* 'Ahmed' from 1421 AD and 馬夏抹 *Mǎxiàmǒ* 'Mohammad' from 1457 AD (Wade, 2000; 2005; Phongsripian, 2017). Transcriptions that belong to this group are termed *Foreign Names*. On the other hand, any transcriptions whose Chinese forms are too obscure to be interpreted due to discrepancies sometimes created by the nature of Chinese transcription are termed *Indecipherable*. For example, transcription #38 虎都卜的毛那那 *Hǔdū Bǔdìmáonànà* from 1406 AD provides no promising clue for the interpretation, even though the part 虎都 *Hǔdū* is recognizable as some sort of title since it was attested with transcription #40 虎都無霞昧 *Hǔdū Wúxiámèi* from 1408 AD, where 無霞昧 *Wúxiámèi* most likely reflects *Mohammad*. This transcription (transcription #38) was therefore excluded from the analysis. It should be obvious by this point that Siamese words are given in the italicized native scripts, followed by their italicized romanisation in Varasarin (2010)'s system, and lastly their phonemic transcription according to Naksakul (2013), that is, above all, tone phonemes are labeled numerically from 0-5, and [tɕ] & [tɕʰ] are treated phonemically as /c/ & /cʰ/ respectively. On the contrary, Chinese words are modestly given in Chinese Characters followed by their modern Standard Mandarin *pinyin* form in italics.

Although some of the kings sent multiple envoys, and some of the envoys visited China more than once, creating the repetitive appearance of some transcription throughout the records, only the first appearance of each transcription is collected in this study on the assumption that an established transcription of a name made prior to the change will continued to be used even after the change took place. While multiple transcriptions for a single person are treated separately such as transcription #75 把囉藍米孫剌 *Bǎluó Lánmǐsūnlà* from 1453 AD and transcription #78 孛剌藍囉者直波知 *Bólà Lánluózhězhíbōzhī* from 1462 AD are known to be the same person, variants of the same transcriptions are treated as duplicates of the same transcriptions, however, such as 柰昭穵哆囉 *Nàizhāo Zhānduòluó* from 1374 AD and 昭邅哆囉 *Zhāo Zhānduòluó* from 1375 AD are treated together as transcription #9 (柰)昭穵哆囉 *(Nài)zhāo Zhānduòluó*, or 三賴波磨剌札的賴 *Sānlài Bōmólàzhádìlài* from 1416 AD and 三賴波摩剌札賴 *Sānlài Bōmólàzhálài* from 1426 AD are treated together as transcription #47 三賴波磨剌札的賴 *Sānlài Bōmólàzhá(dì)lài.* As can be seen, each transcription is numbered according to its relative chronology, the first being transcription #1, and the last being transcription #103. This study refers to all the transcriptions by these numbers, for example transcription #2 refers to the 昭晏孤蠻 *Zhāo Yàngūmán* in the appendix.

As every Chinese character contains no more than a syllable composed of an initial, an optional medial glide, a vowel, and an optional final, this study treats both Chinese and Siamese data in terms

of syllables. It is only natural that polysyllabic Siamese names are broken down to as many monosyllabic Chinese characters as necessary. Cases where there are more Chinese characters than the Siamese syllables arose out of Siamese consonant clusters, usually transcribed with two Chinese characters. As such they must be treated as two syllables with two separate initials, for the ease of finding correspondences. All syllables are labeled according to their phonemic values. The initials of both Chinese and Siamese syllables are labeled according to their voicing, aspiration, and manner of articulation. The place of articulation is not the focus of this study and therefore is left unlabeled. The phonemic value of Siamese words is given in modern Siamese pronunciation. On the other hand, the phonemic value of the Chinese characters is given in 2 pronunciation, the modern Shanghainese and the *"Quasi-Early Nanjing Mandarin"* – QENM.

QENM is a slightly modified version of modern Standard Mandarin to render more resemblance with the earlier form of Mandarin, similar to Shintani (1974)'s use of the Mandarin reading of the 16th century to analyze the *Sino-Siamese Manual of Translation*. In details, QENM pronunciation is derived by reverting all the palatalized initials to their original velars or alveolar sibilants based on Pulleyblank (1991)'s reconstruction of Middle Chinese, and that the Entering tone words of Middle Chinese receive final glottal stops, again based Pulleyblank (1991). Unlike modern Standard Mandarin, the palatalization of velars & alveolar sibilants and the loss of final glottal stops (which itself resulted from an earlier merger of all final stops during the transition from Late Middle Chinese into Old Mandarin) had not occurred during the Ming dynasty (Coblin, 2000; 2001; 2002b), or even during the Early Qing Dynasty, as reflected in Varo (1703).

The rationale for employing both the QENM and the Shanghainese pronunciations is one and the same: they are employed together in the analysis due to the fact that the standard Mandarin pronunciation was explicitly equated with the Nanjing dialect[4] rather than the Beijing dialect by Western accounts prior to the 19th century (Coblin, 2000; 2001; 2002b), such as Varo(1703), among the oldest. Thus, following both Shintani (1974) and Coblin (2000, 2001, 2002b), this study considers the Chinese pronunciation used in MSL to be the *Early Nanjing Mandarin* - ENM. However, because this study did not make a full reversion to many features still present in the 14th century, the Chinese pronunciation given is called just *Quasi*-Early Nanjing Mandarin. This means that chronology-wise, QENM, which was apparently older than the modern Mandarin, was a direct descendant of ENM, or more precisely, a version of ENM with DVO.

According to Coblin (2000, 2001), the Early Nanjing Mandarin (ENM) retained Middle Chinese voiced stops in the form of voiceless "breathy" stops well into the early 15th century, as recorded in both the 'Phags-Pa scripts from the Yuan Dynasty as well as in a Korean manuscript for the instruction of the "proper pronunciation" of the Chinese language of the Ming dynasty. This retention of the three separate series of stops in Early Nanjing Mandarin was most likely an influence from the neighboring Wu dialects, since the Jiang-Huai Mandarin dialects, including the Nanjing Mandarin, serve as the geographical transition zone between the other Mandarin dialects to the north and west and the Wu dialects to the South (Yueh, 1967; Ballard, 1969). Coblin (2002a) suggests that the development of both the Jiang-Huai Mandarin and the Wu dialects were much more complicated than normally thought. It is possible to conceive that DVO might have taken place at different period for different Chinese dialects, as evidence by the area where Wu dialects are spoken being the most resistant to DVO, still retaining three ways distinction in stops that has already been lost in the other Chinese dialects while the Jiang-Huai Mandarin might have been among the last Mandarin dialects to have

[4] The prestige of the Nanjing Mandarin prior to its total replacement by the Beijing counterpart towards the end of the 19th century derived from the historical fact that Nanjing was not only the first capital of Ming dynasty since its advent and remained as the southern capital even after the elevation of Beijing as the northern capital (Wannasinthop & Rangsi-uthai, 2011b), but also of mostly cultural, and sometimes political, importance to the Han Chinese since the fall of the Western Jin dynasty in 317 AD (Wannasinthop & Rangsi-uthai, 2011b): when the Western Jin dynasty fell, the upper class and elites fled North China plain and gathered at the city of Jiankang, the former capital of Eastern Wu kingdom during the three kingdom period, to establish the Eastern Jin dynasty (Goodrich, 2002; Zhou, 2004). Jiankang served as the capital of the Han Chinese whenever North China was occupied by non-Chinese dynasties (Zhou, 2004; Wannasinthop & Rangsi-uthai, 2011a), the last time before the start of Ming dynasty being the Southern Song dynasty (Zhou, 2004; Wannasinthop & Rangsi-uthai, 2011b).

undergone DVO as well. However, we currently hold no knowledge of when DVO in each Chinese dialect. As far as the evidence goes, this separate series of voiceless "breathy" stops in the Early Nanjing Mandarin were never attested up in the first European record of the Mandarin pronunciation by Matteo Ricci around 1600s AD (Coblin, 2000b).

Therefore, Shanghainese data in this study serve to indicate the original state of voicing for the stops, i.e. whether their origin were voiceless unaspirated, voiceless aspirated, or voiced, because Shanghainese and Wu dialects as a whole are typically known for their retention of the Middle Chinese three ways contrast in stops, namely the voiceless unaspirated, voiceless aspirated, and voiced (Yueh, 1967; Ballard, 1969). Among the Wu dialects, this originally voiced stops may be realized in varying degree from simple voiced /Ç/, to voiceless lax /Ç̥/, voiceless breathy /Ç̥ʱ/ (Yueh, 1967), or voiced breathy /Çʱ/ (Coblin, 2002a). Although Shanghainese emerged rather recent in the history, it is chosen as the representative of the Wu dialects only because its data are the most easily accessible to me at present. With the Shanghainese pronunciation, this study does not need to revert all the secondary aspirated and unaspirated stops in modern standard Mandarin pronunciation to their original state of voicing in the Early Nanjing Mandarin pronunciation. That is, QENM pronunciation reflects post-DVO pronunciation, resembling modern pronunciation quite faithfully in terms of voicing and aspiration of the initial stops. Another role of Shanghainese conservatism in the voicing contrast of the stops consonants is to test the reliability of Coblin (2000, 2001, 2002a, 2002b)'s suggestion on the retention such contrasts in the Early Nanjing Mandarin.

As DVO turned the Middle Chinese voiced stops into either aspirated or unaspirated voiceless stops in all modern Mandarin dialects, and hence in QENM as well, depending on the tonal category, the original and the newly emerged voiceless stops must be distinguished apart. Where both Shanghainese and QENM agree in voicing and aspiration of the stops, those stops represents the set of original voiceless stops, and thus will receive the attribute *original* or *primary*, such as the *original/primary unaspirated stops* and the *original/primary aspirated stops*. On the other hand, QENM stops which correspond to voiced consonant in Shanghainese will receive the attribute *secondary*, e.g. the *secondary unaspirated stops* and the *secondary* aspirated stops, as in Siamese. Even though the modern pronunciations of ENM and Siamese are compared out of an attempt to avoid an a priori assumption of the persistence of the original voiced stops in both ENM and Siamese before the 16th-17th century, there are a total of four possible scenarios stemming from permutation of whether ENM or Siamese retain the original voiced stops or not, each scenario with its own set of specific predictions. The four possible scenarios were induced by the imbalance in the number of contrasts in stops: maximally three ways contrast in ENM and four ways contrast in Siamese, and minimally two ways contrast in QENM and three ways contrast in Siamese. It should be noted that while ENM voiceless aspirated/unaspirated stops corresponds to QENM original/primary aspirated/unaspirated stops, ENM voiced stops corresponds to both QENM secondary unaspirated stops and QENM secondary aspirated stops because the types of reflex of DVO in Mandarin depends on the tonal category. Since there was no change in sonorants from ENM to QENM, they are underspecified as (Q)ENM sonorants.

Scenario #1 – ENM *3 ways*, Siamese *4 ways*

In this scenario where the original voiced stops are supposed to remain in both ENM and Siamese, that is, there were three ways contrast in ENM and four ways contrast in Siamese, it is predicted that there should be no confusion between the voiceless and the voiced stops between the ENM initials and the Siamese initials. That is, the Siamese voiceless unaspirated stops should be transcribed by the ENM voiceless unaspirated stops, the Siamese original voiceless aspirated stops by the ENM original voiceless aspirated stops, and the Siamese original voiced stops by the ENM original voiced stops. In other words, this scenario predicts strict use of one type of stops for another type. This also means that in terms of the reflex from modern pronunciation, the use of QENM secondary aspirated stops with the Siamese secondary aspirated stops might be attested and would not be differentiated from the case where both ENM and Siamese underwent DVO. Another important indicator is thus the use of QENM secondary unaspirated stops with the Siamese secondary aspirated stops, which makes no sense unless they were both voiced prior. In addition though, it is predicted that implosives might be transcribed by either the ENM voiced stops, due to inability to distinguish them from the true voiced stops in

Siamese, or (Q)ENM sonorant, due to an attempt to make a distinction. Chronologically, scenario #1 serves as the oldest possible situation where DVO had not taken place in either of the two languages.

Scenario #2 – Chinese *2 ways*, Siamese *4 ways*
In this scenario where DVO is supposed to have taken place in ENM, but not in Siamese, that is, there were two way contrast in QENM stops but four ways contrast in Siamese still, it is predicted that in addition to the perfect match between the QENM original voiceless unaspirated stops and the Siamese voiceless unaspirated stops, and the QENM original voiceless aspirated stops and the Siamese original voiceless aspirated stops, the Siamese voiceless unaspirated stops and the Siamese voiceless aspirated stops should be transcribed by the QENM secondary unaspirated stops and the secondary aspirated stops respectively. Most importantly, it is also predicted that the Siamese original voiced stops and implosives alike should be transcribed by either the QENM original voiceless unaspirated stops or the QENM secondary unaspirated stops due to distinctive lack of aspiration. In addition, there is a potential that both Siamese original voiced stops and the implosives could be transcribed by the (Q)ENM sonorant out of similarity in voicing. Chronologically, this scenario is one of the two scenarios that could follow scenario #1.

Scenario #3 – Chinese *3 ways*, Siamese *3 ways*
In this scenario where DVO is supposed to have taken place in Siamese, but not in ENM, that is, there were three way contrasts equally in both ENM and Siamese, it is predicted that there should be a perfect match between the ENM voiceless unaspirated and aspirated stops and the Siamese voiceless unaspirated and aspirated stops, respectively. Most importantly, the use of QENM original aspirated stops with the Siamese secondary aspirated stops should be found. Moreover, the Siamese original implosives which became simple voiced stops should be transcribed by the ENM original voiced stops. This scenario is also one of the two scenarios that could follow scenario #1. However, it should be noted that scenario #2 and scenario #3 are mutually exclusive, for they can neither precede one another nor co-occur.

Scenario #4 – Chinese *2 ways*, Siamese *3 ways*
Apart from the usual expected use of ENM voiceless unaspirated and aspirated stops for the Siamese voiceless unaspirated and aspirated stops, it is predicted in this scenario where DVO is supposed to have taken place in both ENM and Siamese, that is, there were two way contrasts in QENM but three way contrasts in Siamese, that there should be a two-way attestation between the original voiceless aspirated stops and the secondary aspirated stops. That is, both the use of the QENM original/primary aspirated stops for the Siamese secondary aspirated stops, and the use of the QENM secondary aspirated stops for the Siamese original/primary voiceless aspirated stops should be attested. In addition, it is expected that there should be a use of the QENM secondary unaspirated stops for the Siamese voiceless unaspirated stops as well. The Siamese implosives which became simple voiced stops are predicted to be transcribed by the (Q)ENM sonorants. This scenario is chronologically the latest possible situation, which resembles the sound system of both QENM and Siamese in the 16th-17th century as far as the evidence goes. Table 2 reiterates the predictions of each scenario.

Hence, if both Siamese and Early Nanjing Mandarin had equally been through DVO by the time of MSL, the correspondence from the transcription would indicate. In other words, the pre-devoicing stage of both languages are not compared simply because if the original voiced stops did indeed change to voiceless aspirated, the beginning of DVO will be indicated by the first time when the QENM original/primary aspirated stops were used for the original voiced stops, which gave rise to the secondary aspirated stops in modern Siamese. That is, although comparing both languages in their pre-devoicing phonemic value is rather necessary, it is not done in this paper since the correspondence of modern pronunciation can tell whether the Siamese secondary aspirated stops were already voiceless aspirated or not. Otherwise, it means that DVO had yet to come into fruition. As such, the primary attention is given to the initial consonants. The rest of the syllables are treated together as "rimes" and are used to confirm the validity of the interpretation only. For example the name 把囉藍米孫剌 *Bǎluō Lánmǐsūnlá* is interpreted as *Brăḥ Rāmesvarrāj* /pʰraʔ3.ra:0.me:0.suən4.ra:t2/ (Siamese: พระราเมศวรราช) due to the phonological resemblance between the rimes.

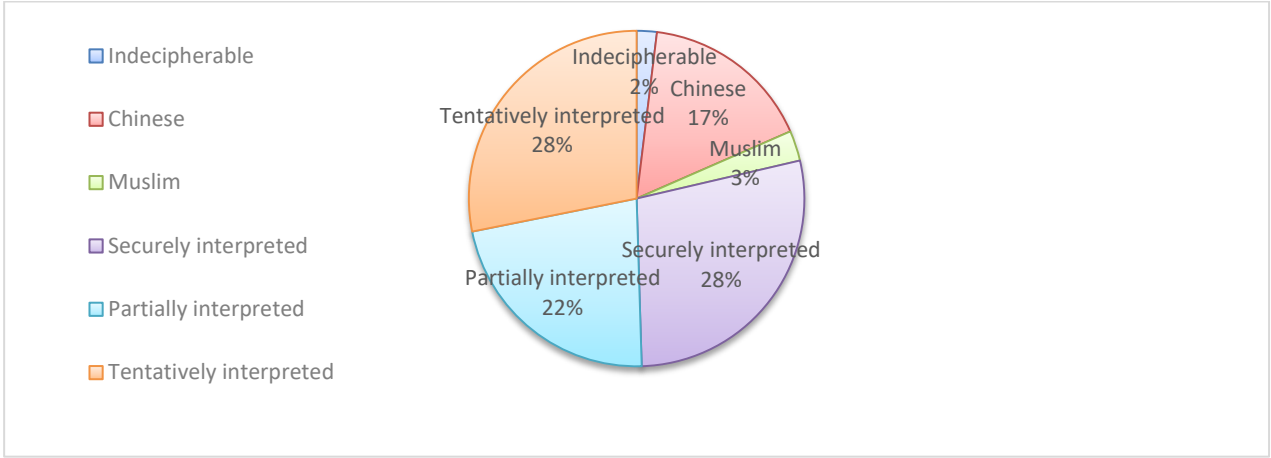
Table 2: *The 4 Scenarios and their predictions*

Scenario	(Q)ENM	Siamese	Prediction
#1	3	4	Chinese vl unasp : Siamese vl unasp Chinese vl asp : Siamese vl asp **Chinese voiced : Siamese original vd** **Chinese voiced & sonorant: Siamese original implosives**
#2	2	4	Chinese vl unasp : Siamese vl unasp Chinese vl asp : Siamese vl asp **Chinese original vd > vl unasp : Siamese vl unasp** **Chinese original vd > vl asp : Siamese vl asp** **Chinese vl unasp : Siamese original vd & implosives** **Chinese original vd > vl unasp : Siamese original vd & implosives** **Chinese sonorant : Siamese original vd & implosives**
#3	3	3	Chinese vl unasp : Siamese vl unasp Chinese vl asp : Siamese vl asp **Chinese vl asp : Siamese original vd > vl asp** **Chinese voiced : Siamese original implosive > vd**
#4	2	3	Chinese vl unasp : Siamese vl unasp Chinese vl asp : Siamese vl asp Chinese original vd > vl unasp : Siamese vl unasp **Chinese original vd > vl asp : Siamese vl asp** **Chinese original vd > vl asp : Siamese original vd > vl asp** **Chinese vl asp : Siamese original vd > vl asp** **Chinese sonorant : Siamese implosive > vd**

5. Transcription of Siamese names in MSL

MSL contains a total of 103 transcriptions from 1371 to 1623 AD, with 81 transcriptions (78%) identifiable as Siamese names. Two transcriptions (2%) are totally undecipherable, while twenty transcriptions (19%) are identified as Non-Siamese names. Seventeen of that are Chinese while the other three are Muslim names. Based on the certainty of the interpretation, the 81 transcriptions identified as Siamese names are further divided into 3 groups as mentioned in the methodology: 29 belong to the securely interpreted and tentatively interpreted each, and the other 23 to the partially interpreted. Figure 2 visualizes the proportion of each group in detail.

Figure 2: *Transcription of Siamese personnel's in MSL*



All the 103 transcriptions are given in the Appendix: each transcriptions are arranged in the order of 1) the attested Chinese transcription, 2) Pinyin romanization presented in italics, 3) attested year in brackets, 4) Siamese interpretation, 5) Varasarin (2010)'s transliteration of Siamese script presented in

italics, and 6) Modern Siamese pronunciation with tones in phonemic representation. This section will both demonstrate and analyze the correspondence sets of the four original types of Siamese stops and their corresponding Chinese transcription. The analysis is conducted with the securely interpreted transcriptions alone, for the result from either the partially interpreted or the tentatively interpreted transcriptions might call into question the proposed conclusion.

5.1 Correspondence sets of the voiceless unaspirated stops

Table 3 demonstrates the correspondence between the Siamese vocabulary that begins with voiceless unaspirated stops as well as their Chinese transcription and their initials in QENM and Shanghainese.

***Table 3**: Correspondence sets of the Siamese voiceless unaspirated stops and Chinese transcription*

	Transcription Number	Syllable Number	Siamese	Modern Pronunciation	Chinese Character	QENM	Modern Shanghainese
1371	#1	#3	เจ้า	c	昭	t͡ʂ	t͡s
1371	#2	#1	เจ้า	c	昭	t͡ʂ	t͡s
1371	#2	#3	กุ	k	孤	k	k
1374	#9	#2	เจ้า	c	昭	t͡ʂ	t͡s
1374	#9	#3	จัน	c	穜	t͡ʂ	t͡s
1374	#13	#1	เจ้า	c	昭	t͡ʂ	t͡s
1403	#33	#1	เจ้า	c	昭	t͡ʂ	t͡s
1418	#48	#2	แก้ว	k	叫	k	t͡ɕ
1428	#57	#3	ฎึก	t	德	t	t
1444	#68	#1	ก-	k	谷	k	k
1482	#85	#1	ก-	k	國	k	k
1497	#91	#	ใจ	c	齋	t͡ʂ	t͡s

The correspondence between the voiceless unaspirated stops in Siamese and their Chinese transcriptions shows a perfect match both for voicing and aspiration. That is, as the Shanghainese data shows, the original/primary unaspirated stops in QENM were used for the voiceless unaspirated stops in Siamese. A slight mismatch is observed in the transcription of Siamese palatal stops, where the Chinese affricates were employed (retroflex in QENM but alveolar in Shanghainese). Strictly speaking, any palatal stops phoneme in Siamese are phonetically not a true stop, but rather an affricate (Pittayaporn, 2009). Thus, Chinese affricates are qualified enough for transcribing the Siamese palatal stops phonemes, which are, phonetically speaking, affricates.

5.2 Correspondence sets of the voiceless aspirated stops

Table 4 demonstrates the correspondence between the Siamese vocabulary that begins with the primary aspirated stops as well as their Chinese transcription and their initials in QENM and Shanghainese.

Similarly, the correspondence between the primary aspirated stops in Siamese and the Chinese transcriptions match perfectly well: their voicing and manner of articulation are identical as predicted and contrasts strongly with the previous set, suggesting the distinctiveness between the two kinds of aspiration which led to the consistence in their transcription, i.e. no confusing or overlapping between the two. What should be highlighted though is that there is at least one instance, namely ฐิ *ṭhī* /tʰiː4/, the 5th syllable of transcription #82 from 1479 AD, whose transcribing character 提 *tí* has initial /d/ in Shanghainese, suggesting that the QENM /tʰ/ was actually the *secondary aspirated stops*. This instance indicates that DVO was completed in the Early Nanjing Mandarin by at least 1479 AD, making the transcription of Siamese primary aspirated stops by the Chinese secondary aspirated stops possible.

***Table 4**: Correspondence sets of the Siamese primary aspirated stops and Chinese transcription*

	Transcription Number	Syllable Number	Siamese	Modern Pronunciation	Chinese Character	QENM	Modern Shanghainese
1372	#3	#8	เอฬี	t^h	替	t^h	t^h
1387	#25	#1	ขุน	k^h	坤	k^h	k^h
1387	#25	#8	เอฬี	t^h	替	t^h	t^h
1428	#57	#5	เอฬี	t^h	剃	t^h	t^h
1479	#82	#1	ขุน	k^h	坤	k^h	k^h
1479	#82	#5	เอฬี	t^h	提	t^h	d
1497	#91	#1	ขุน	k^h	坤	k^h	k^h
1516	#94	#1	ขุน	k^h	坤	k^h	k^h
1612	#102	#1	ผู้	p^h	普	p^h	p^h

5.3 Correspondence sets of the voiced stops

Table 5 demonstrates the correspondence between the Siamese vocabulary that begins with the modern voiced stops (originally implosives) as well as their Chinese transcription and their initials in QENM and Shanghainese.

Table 5: Correspondence sets of the Siamese voiced stops and Chinese transcription

	Transcription Number	Syllable Number	Siamese	Modern Pronunciation	Chinese Character	QENM	Modern Shanghainese
1371	#1	#2	เด็จ	d	烈	l	l
1373	#8	#2	เด็จ	d	烈	l	l
1416	#47	#2	เด็จ	d	賴	l	l
1416	#47	#3	บ-	b	波	p	p
1453	#74	#1	บ-	b	波	p	p
1462	#78	#7	บ-	b	波	p	p
1462	#78	#8	ดี	d	知	t͡ʂ	t͡s
1623	#103	#2	เด็จ	d	烈	l	l

This set of correspondence is clearly distinct from the first two sets, representing yet a third set of stops which were most likely voiced. On one hand, the use of Chinese /l/ for /d/ is already well attested as the main method of transcription in the study of the *Sino-Siamese Manual of Translation* by Yongbunkeut (1967), Shintani (1974), Davidson (1987), and Endo (2009), due to the similarity in voicing between voiced stops or implosives and sonorants. Meanwhile the use of QENM /t͡ʂ/ (equal to Shanghainese /t͡s/) for Siamese /d/ in ดี represents stops quality of the Siamese implosives as well as suggesting a non-Mandarin influence on the choice of transcription: 知 is pronounced /ti[陸平]/ in both Hokkien and Teochew. On the other hand, /b/ was transcribed by QENM /p/, not the expected /m/, which is a well attested method of transcription of /b/ in the study of the Sino-Siamese Manual of Translation. However, since the attested syllable *บ- pa* comes from the morpheme *บรม parama* /bɔ.rom(ə)/ 'Great', the use of /p/ in QENM probably stemmed out of the first phonetic adaptation into /m(ɔ).lɔ.mɔ/, where either [ml] cluster violates the sonority hierarchy, eventually leading to the second phonetic adaptation to /p/ to render the cluster more obedient to the sonority hierarchy, or the first [m] were dissimilated from the last /m/ since the difference between their original source was perceived by the scribes.

5.4 Correspondence sets of the secondary aspirated stops

As we have seen from Table 3, 4, and 5, the first two sets of correspondence, namely the voiceless unaspirated stops and the original/primary voiceless aspirated stops in Siamese were transcribed by their exact equivalents in Chinese, while the third group, namely the original implosives which became simple voiced stops, was transcribed distinctively by either sonorants or unaspirated stops. This means pretty much that the three previous groups of stops consonants in Siamese were pretty similar to their modern equivalence, namely voiceless unaspirated stops, voiceless aspirated stops, and voiced stops. As opposed to the three previous groups of stops consonants, the secondary aspirated stops in Siamese were transcribed by four types of QENM stops: primary/original unaspirated stops, primary/original aspirated stops, secondary unaspirated stops, and secondary aspirated stops, although with discernable patterns: these four types of QENM stops correspond have their own period of attestation, as presented chronologically in Figure 3. Meanwhile, Table 6 demonstrates the correspondences between the Siamese vocabulary that begins with the secondary aspirated stops (originally voiced) as well as the Chinese transcription and their initials in QENM and Shanghainese.

Based on the four types of transcription patterns, the correspondence can be divided roughly into two periods, namely 1) before 1480 AD, and 2) from 1480 AD onwards. From 1371-1428 AD, the secondary aspirated stops in Siamese were mostly transcribed by either the secondary aspirated stops or the original/primary unaspirated stops, and very few by the secondary unaspirated stops, in QENM. The use of QENM secondary aspirated stops was attested until 1403 AD. Meanwhile, the use of QENM original/primary unaspirated stops coexisted with the former method, but disappeared after 1463 AD. The period prior to 1480 AD sees the use of the QENM original/primary unaspirated stops for both the reduced syllables and full syllables[5]. In contrast, the role of the original/primary unaspirated stops and the secondary unaspirated stops in QENM after 1480 AD onwards were limited to just reduced syllables, not in full syllables. This is perhaps because aspiration was not strongly perceived in such type of syllables.

Most importantly, the use of the QENM original/primary aspirated stops were first attested in 1444 AD, precisely the transcription of ꡏ *dhi* /tʰiʔ3/ the 4th syllable of transcription #68 by /tʰ/ in 替 *tì*, and reappeared in 1480 AD as the transcription for ꡗ *bang* the 3rd syllable of transcription #83 by /p/ in 捧 *pěng*. These two instances are the clearest sign for the occurrence of DVO, since they are but a straightforward evidence that the originally voiced stops in Siamese were perceived by the Chinese as simple aspirated stops, and hence such transcription. Indirect evidence in favor of such argument includes not only the lack of overlapping transcription pattern between the original voiceless unaspirated and aspirated stops in Siamese but also the use of QENM secondary aspirated stops for the Siamese original/primary aspirated stops in 1479 AD, precisely the transcription of ꡐ *ṭhī* /thi:4/, the 5th syllable of transcription #82. The resurgence of QENM secondary aspirated stops for Siamese secondary aspirated stops in 1479 AD onwards thus suggests the completion of DVO in both the Early Nanjing Mandarin and Siamese by at least 1479 AD.

[5] While the term *full syllable* includes both a bimoraic CV{V|C} and a trimoraic CVVC syllables, the term *reduced syllable* refers to either a monomoraic CV syllable, or the first consonant in the cluster which was transcribed by a separate Chinese character, that is CRV… > CV-RV…

***Table 6**: Correspondence sets of the Siamese secondary aspirated stops and Chinese transcription*

	Transcription Number	Syllable Number	Siamese	Modern Pronunciation	Chinese Character	QENM	Modern Shanghainese
1371	#1	#4	พ-	pʰ	毘	*pʰ*	**b**
1372	#3	#4	ชัย	cʰ	儕	*t͡ɕʰ*	**z**
1372	#3	#6	ช-	cʰ	識	ʂ	s
1373	#8	#3	พ่อ	pʰ	寶	p	p
1373	#8	#4	พ-	pʰ	毘	*pʰ*	**b**
1373	#8	#8	ท-	tʰ	哆	t	t
1374	#9	#4	ท-	tʰ	哆	t	t
1374	#13	#3	คร	kʰ	群	*kʰ*	**d͡z**
1387	#25	#4	ชัย	cʰ	濟	t͡s	t͡s
1387	#25	#6	ช-	cʰ	職	t͡ʂ	t͡s
1396	#31	#4	เชิง	cʰ	曾	*t͡sʰ*	**z**
1403	#33	#3	คร	kʰ	群	*kʰ*	**d͡z**
1403	#33	#5	ท-	tʰ	哆	t	t
1403	#33	#7	ธิ	tʰ	諦	t	t
1404	#36	#4	พ-	pʰ	孛	*p*	**b**
1416	#47	#7	ชา	cʰ	札	t͡ʂ	t͡s
1416	#47	#8	ธิ	tʰ	的	t	t
1428	#57	#2	โช	cʰ	注	t͡ʂ	t͡s
1444	#68	#4	ธิ-	tʰ	替	tʰ	tʰ
1453	#74	#5	ชา	cʰ	笳	t͡ʂ	t͡s
1453	#74	#6	ธิ	tʰ	的	t	t
1453	#75	#1	พ-	pʰ	把	p	p
1462	#78	#1	พ-	pʰ	孛	*p*	**b**
1462	#78	#5	ชา	cʰ	者	t͡ʂ	t͡s
1462	#78	#6	ธิ	tʰ	直	*t͡ɕ*	**z**
1479	#82	#3	คร	kʰ	羣	*kʰ*	**d͡z**
1480	#83	#3	พง	pʰ	捧	pʰ	pʰ
1482	#85	#3	พ-	pʰ	勃	p	**b**
1482	#85	#6	คร	kʰ	坤	kʰ	kʰ
1482	#85	#10	ธิ-	tʰ	地	*t*	**d**
1554	#96	#1	พ(ระ)	pʰ	勃	*p*	**b**
1554	#96	#3	คร	kʰ	坤	kʰ	kʰ
1554	#96	#7	ธิ	tʰ	池	*t͡ɕʰ*	**z**
1623	#103	#3	พ-	pʰ	怕	pʰ	pʰ

***Figure 2:** Chronological Attestation of Transcription Patterns for Siamese secondary aspirated stops*

1. Secondary Aspirated Stops: 1371-1403 AD, 1479-1554 AD
2. Primary/Original Unaspirated Stops: 1372-1428 AD
3. Secondary Unaspirated Stops: 1404-1554 AD
4. Primary/Original Aspirated Stops: 1444-1623 AD

6. Discussion

Although the dating of the time period when the Siamese original voiced stops became voiceless aspirated, a phenomenon called DVO, is finally established through an examination of the correspondence between the initial of the Chinese transcription and the Siamese names, there are several related issues that remain to be discussed in this section.

6.1 Reliability of Indic Loans

Here at this point, it should be quite noticeable that a great deal of Siamese vocabulary in MSL that made up the feudal titles of the Siamese envoys and the name of the Siamese kings, were of Indic origin, whether through Old Khmer or not. Even so, the non-native Tai vocabulary of such origin do not invalidate the result of the analysis, for the modern Siamese pronunciation of these Indic loan words, as well as that of Old Khmer loan words in Siamese, clearly shows that they too underwent DVO and tone split. Table 7 compares the pronunciation of Native Tai words and Indic loans with original voiced stops initial.

Table 7: *Comparison of modern pronunciation of Indic loans and Native Tai vocabulary*

Siamese spelling		Original Pronunciation	Modern Pronunciation	Gloss	Source
คาง	*Gāṅ*	**g**a**:ŋA	k**ʰ**a:ŋ0	chin	Native Tai
ครุฑ	*Gruḍ*	**g**a**.ru.ɖa	k**ʰ**rut3	garuda	Indic
ครรภ์	*Grrbh*	**g**ar**.bʱa	k**ʰ**an0	impregnated belly	Indic
ช้าง	*Jāṅ²*	**ɟ**a**:ŋC	c**ʰ**a:ŋ3	elephant	Native Tai
ชาติ	*Jāṯi*	**ɟ**a**:.ti	c**ʰ**a:t2	ethnicity, nation	Indic
ชีวิต	*Jīvit*	**ɟ**i**:.vi.ta	c**ʰ**i:0.wit3	life	Indic
ทาง	*Dāṅ*	**d**a**:ŋC	t**ʰ**a:ŋ1	way, road	Native Tai
ทุกข์	*Dukkh*	**d**u**k.kʰa	t**ʰ**uk2	suffering	Indic
ทิ(ฏ)ฐิ	*Diṭṭhi*	**d**i**ʈ.ʈʰi	t**ʰ**it/ʔ3.tʰiʔ1	opinion, view	Indic
พัก	*Băk*	**b**a**kD	p**ʰ**ak3	to rest	Native Tai
พุธ	*Budh*	**b**u**d.dʱa	p**ʰ**ut3	*Budha (Deity)*	Indic
พันธ์	*Bandh*	**b**an**.dʱa	p**ʰ**an1	bond	Indic

Had the tone split and DVO took place in Siamese much earlier in the history as per suggestions of Brown (2007 [1965]) and Chamberlain (1991), precisely predating the borrowing of Indic and Khmer vocabulary, the voiced stops in Indic or Khmer loans should not be pronounced as voiceless aspirated stops in modern Siamese as shown in Table 7. If DVO really predated the borrowing, words like *Dukkha* 'suffering' and *Bandha* 'bond' for example should have been adopted as ดุกข์ *Tukkh* /duk1/ and บันด์ *Păṅt* /ban0/, respectively. Since their modern pronunciation clearly reflects a result of tone split and DVO, that is, all voiced stops of either Indic or Old Khmer Khmer origin are nowadays pronounced as voiceless aspirated stops with tones of the original voiced consonant, we ought to believe that these loan words were incorporated into Siamese when DVO had not taken place, i.e. they were borrowed with voiced pronunciation. This is exactly as Gedney (1991) already suggested. The exact historical period when these loans became part of the Siamese vocabulary is yet to be discovered.

One might feel compelled to think that perhaps Indic loans had special pronunciation unlike the Native Tai words during the earliest period when Indic words were first adopted into Siamese. That is, whereas the native Tai words might have undergone DVO, the pronunciation of Indic loans remain true to its origin and treated as some sort of an educated or a liturgical language with a separate phonology. Even so given their current pronunciation, it is hard to believe that at the time the borrowing took place, these foreign vocabularies were pronounced with a sound system entirely different from Early Siamese. That is, it seems more likely on the contrary that the Early Siamese

phonology did not venture too far from that of Indic/Old Khmer, still retaining voiced stops as a separate category. Gedney (1991) suggests that even after DVO, the newly incorporated Indic loans were borrowed through spelling and pronounced natively, that is, with devoicing of the original voiced stops into voiceless aspirated stops with the tones of the original voiced initials.

It is thus entirely inconceivable to think that there were two separate waves of DVO taking place in Siamese targeting two separate sound systems, one occurring with the native Siamese phonology prior to the adoption of Indic/Old Khmer loans, and another occurring with the phonology specific to the pronunciation of these adopted vocabulary of Indic or Old Khmer. Only this would explain why Indic and Old Khmer loans are treated like the native Tai vocabulary that underwent DVO and the tone split prior to the adoption of these loans, but this explanation seems less than likely given the modern reflex of Indic and Old Khmer loans in Siamese. As far as the evidence goes, these non-Tai vocabularies were pronounced as devoiced by the 17th century, conforming with Harris (1992)'s study of the French transcription of the Siamese pronunciation of the said period. To cite a few, some examples include 1) De Choisy (1685), where we found ***Ph**ra Narai* for ***B**răḥ Nārāyṇ* (Siamese: พระนารายณ์, King Narai the Great), 2) Gervaise (1688), where we found *Meüang-Croung-**Th**êp-Maana**c**one* for *Meḭaṅ Krung **D**ēb Mahāna**g**ar* (Siamese: เมืองกรุงเทพมหานคร), ***P**orcelouc* for ***B**iṣṇulōk* (Siamese: พิษณุโลก), ***Pip**ly* for ***B**ripb**l**ī* (Siamese: พริบพลี), *Chan**t**eboune* for *Can**d**apūrṇ* (Siamese: จันทบูรณ์), ***P**ra-**C**lang* for ***B**răḥ **G**lăṅ* (Siamese: พระคลัง), *Oya **P**esedet* for *Ạkñā **B**răḥ Stec* (Siamese: ออกญาพระเสด็จ), and 3) De la Loubère (1688), where we found *teu* & *tan* as the transcription of the second/third person pronoun ***Dh**ea* (Siamese: เธอ) & ***D**ān¹* (Siamese: ท่าน) respectively. All the examples show a devoiced pronunciation of the originally voiced consonants.

6.2 Devoicing of Voiced Obstruents in Early Nanjing Mandarin

Coblin (2000, 2001) suggests that although the Middle Chinese transformed into *voiceless breathy stops* in the Early Nanjing Mandarin, which were still the present in the early 15th century as reflected from a Korean manual on the "correct pronunciation" of Mandarin during the Ming dynasty, there were no sign of these *voiceless breathy stops* in the first European record of the Mandarin pronunciation from around 1600s AD. The exact period when the Early Nanjing Mandarin *voiceless breathy stops* turned into the secondary voiceless stops, aspirated or not, remained a mystery still. Given our current knowledge however, DVO most likely took place between 1400s-1600s AD. How the attested transcription patterns of the Siamese original implosives (modern voiced stops) and original voiced stops (modern secondary aspirated stops) in MSL fit into specific predictions of the four proposed scenarios may illuminate this issue.

Let us consider the transcription patterns of the Siamese original implosives. While the use of (Q)ENM sonorants among the first and the last period places the whole situation into either scenario #1 or #4, the use of the QENM original/primary unaspirated stops which perfectly fits into scenario #2 automatically associates the first and the last period with scenario #1 and #4 respectively. That is, in the first period both ENM and Siamese retained the original voiced stops while in the last period neither QENM nor Siamese retained their original voiced stops. The period in between reveals that it was ENM that first underwent DVO (into becoming QENM), not Siamese. The data do not fit into scenario #3 because there was no instance where the ENM original voiced stops were employed, suggesting that there was never a situation where the original implosives in Siamese became simple voiced when the original voiced stops still remain in ENM.

If we turn our attention to the transcription patterns for the Siamese original voiced stops which became the secondary aspirated stops we would find that whereas the perfect match between the secondary aspirated stops in both Siamese and QENM in the period before 1403 AD points to either scenario #1 or #4, the use of the original/primary unaspirated stops not only points to scenario #2, but also reject scenario #4 at that period. Moreover, the use of the QENM original/primary aspirated stops for the Siamese secondary aspirated stops in 1440s-1480s AD shows exactly that the four decades corresponds to scenario #4. Although such usage of the QENM original/primary aspirated stops also points to scenario #3 as well, scenario #3 was refuted by scenario #2 due to their mutual exclusiveness. In summary, the data seem to suggests that both the Early Nanjing Mandarin and Siamese in the late 14th century still retain the original number of contrast, but the Early Nanjing Mandarin was the first to lose the one of the contrast, and eventually Siamese followed the same path.

Whatever the actual phonetic characteristic of the Siamese voiced stops was prior to the change remains to be find out. The fact that the use of the original/primary unaspirated stops and secondary aspirated stops in QENM for the secondary aspirated stops in Siamese coexist suggests that the Siamese original voiced stops, although remained a separate category in the sound system, were most likely not just simple voiced stops. This will be elaborated in the next section.

6.3 Possible Phonetic Realization of the Siamese original voiced stops

Although this study found an evidence crucial to locating the temporal placement of DVO in the history of Siamese, precisely around 1440s-1480s AD, the phonetic realization of those Siamese original voiced stops before they became devoiced remains uncertain. This might be gleamed from how the Siamese secondary aspirated stops were transcribed throughout time. There is a possibility that there was an involvement of breathiness as an intermediary state in the transition between voiced stops to voiceless aspirated stops, akin to Pulleyblank (1970), and Pittayaporn & Kirby (2017).

Breathiness as an intermediate stage is usually assumed theoretically based on the presence or absence of aspiration in the modern reflex of voiced stops in the languages which is known to have undergone a tone split, like the Chinese varieties (Pullyblank, 1970) and the Tai dialects (Pittayaporn & Kirby, 2017). As mentioned earlier, there even is a case that conforms perfectly with the theory, for example a Central Tai dialect spoken in the province of Cao Bằng in the northern Vietnam retained the Proto-Tai voiced stops in the form of breathy-voiced stops (Pittayaporn & Kirby, 2017). Even in the non-tonal languages in mainland Southeast Asia, breathiness as relic of former voiced stops is well attested in multiple Austroasiatic languages (Brunelle & Kirby, 2017), such as one of the Bruu dialect currently spoken in Ubon Ratchathani, Northeastern Thailand (L-Thongkum, 1979), the Kuy-Kuay languages currently spoken in the contiguous area of the southern part of Northeast Thailand, Southern Lao, and Northeastern Cambodia (Sukgasame, 1992; Nawalertpreecha, 2009), and the Western Khmer dialect currently spoken in Chanthaburi, Thailand (Wayland & Jongman, 2001).

The first attestation of the transcription of the Siamese secondary aspirated stops by the QENM original/primary aspirated stops in 1444 AD suggests that DVO must have started in Siamese around that time, leading to such transcription. Though, since it did not become stable until 1480s, it ought to be assumed that DVO took about four decades to complete the change, namely from 1440s AD to 1480s AD. Prior to 1440s AD, the transcription of the Siamese secondary aspirated stops by the QENM secondary aspirated stops suggests that the Siamese voiced stops were perhaps phonetically similar to the ENM original voiced stops, which were most likely realized phonetically as voiceless breathy stops by that time. The preference to employ these ENM breathy stops for the transcription of the Siamese original voiced stops, whose phonetic realization is currently unknown, might have been due to either that ENM breathiness was the closest equivalent to the voicedness of Siamese voiced stops, or that the Siamese original voiced stops had gain the additional breathiness, so they were phonetically closest to the ENM breathy stops.

Thus, I would like to make a tentative proposal here that as an intermediate stage between their original voicedness of Proto-Southwestern Tai and their modern voicelessness with aspiration, the Siamese voiced stops had become breathy stops prior to 1440s, rather than continuing as simple voiced stops. More precisely, I tentatively propose that their earliest form might have been voiced stops with non-phonemic breathiness *b(ɦ), *d(ɦ), *ɟ(ɦ), *g(ɦ) during 1370s-1400s AD, breathy stops with non-phonemic voicing *bɦ~pɦ, *dɦ~tɦ, *ɟɦ~cɦ, *gɦ~kɦ during 1400s-1440s AD, and finally voiceless breathy stops with fully aspirated allophones *pɦ~pʰ, *tɦ~tʰ, *cɦ~cʰ, *kɦ~kʰ during 1440s-1480s AD. Finally, I would like to propose a slight modification to Pittayaporn (2009: 248)'s schema of the tone split & the loss of voicing contrast, as represented by Figure 4, to encapsulate all possible outcomes of DVO.

Figure 4 expands Pittayaporn (2009: 248)'s final steps of Tone split process into multiple end points. This is necessitated by the fact that there were languages in 2) & 3), such as L-Thongkum (1997)'s three Thổ dialects in Wenshan and Maguan county of Yunnan Province, China, a unique language which took path 4a), namely Wei & Edmonson (1997)'s Sanfang Zhuang, while 4b) is the common path which most Tai dialects underwent. with Pittayaporn & Kirby (2017)'s Cao Bằng Tai being the only dialect that remains fossilized in this stage. The majority of Tai dialects eventually underwent 6a) while few Central Tai dialects and the Southwestern Tai dialects towards the south such

as Lao, Phuan, Phuthai, Siamese, and Southern Thai, or even Saek the misplaced Northern Tai dialect underwent 6b) instead. The further change of implosives into sonorants as found in Shan or Tai Nuea for examples, as well as de-implosivisation into simple voiced stops as in modern Siamese are better treated as a posterior development subsequent to stage 6.

***Figure 3**: Slight Modification of Pittayaporn (2009: 248)'s schema of Tonesplit & DVO*

<table>
<tr><td rowspan="2"></td><td colspan="4">Consonant Phonemes</td><td rowspan="2">Tone Phonemes</td></tr>
<tr><td>Sonorants</td><td colspan="3">Obstruents</td></tr>
<tr><td rowspan="2">0) Original State</td><td>*ʰm</td><td>*pʰ</td><td>*p</td><td>*ɓ</td><td rowspan="2">*A *B *C *D</td></tr>
<tr><td>*m</td><td colspan="3">*b</td></tr>
<tr><td rowspan="2">1) Emergence of allophonic variants</td><td>*ʰm</td><td>*pʰ</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td>*m</td><td colspan="3">*b</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">2) Voicing of voiceless sonorants
&
3) Primary tone split</td><td rowspan="2">*m</td><td>*pʰ</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td colspan="3">*b</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">4a) Merger of Implosives and Voiced stops (extremely rare)</td><td rowspan="2">*m</td><td>*pʰ</td><td>*p</td><td></td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td colspan="2">*b</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">4b) Acquisition of breathiness in Voiced stops</td><td rowspan="2">*m</td><td>*pʰ</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td colspan="3">*bʱ</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">5) Devoicing of voiced obstruents</td><td rowspan="2">*m</td><td>*pʰ</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td colspan="3">*pʱ</td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">6a) Complete Loss of breathiness</td><td rowspan="2">*m</td><td>*pʰ</td><td rowspan="2">*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td></td><td>*A2 *B2 *C2 *D2</td></tr>
<tr><td rowspan="2">6b) Re-analysis of breathiness as aspiration</td><td rowspan="2">*m</td><td rowspan="2">*pʰ</td><td>*p</td><td>*ɓ</td><td>*A1 *B1 *C1 *D1</td></tr>
<tr><td></td><td></td><td>*A2 *B2 *C2 *D2</td></tr>
</table>

My proposal regarding the development of the Siamese original voiced stops thus far clearly reflect the direct pathway from 4b) straight to 6b). However the actual state of voicing the Siamese original voiced stops, the dating of DVO in Siamese is secure and has an implication towards the dating of the merger between Tone B of the original voiced initials and Tone C of the original voiceless initials in Siamese, or B4 = C123 merger according to Gedney (1972)'s notation, since this merger cannot took place unless the voiced stops were devoiced to voiceless aspirated stops. Moreover, this study also shows that historical records of this kind can be used in complement to the limitations of the Comparative Method, which at best can only approximate the relative order of changes, but not the actual date of changes itself. Unfortunately, there were not as many written records for languages from most places of the world as the European languages.

7. Conclusion

In line with Shintani (1974), Li (1977) and Gedney (1989 [1978]), this study proposes the dating of devoicing of voiced obstruents by means of examining the Chinese transcription of Siamese names in the written records attested during the 14th and 17th centuries. The result suggests that Siamese voiced stops had not become voiceless aspirated before 1440s AD, and that the change had arrived at its completion only after 1480s AD. This process might have taken place since 1370s AD or between 1440s-1480s AD. The result of this study not only supports Shintani (1974) and Gedney (1989 [1978])'s hypothesis, but also rejects Brown (2007 [1965]) and Chamberlain (1975; 1991)'s proposals. Since this study shows that devoicing of voiced obstruents in Siamese took place much more recently in history than traditionally assumed for all the Tai dialects as a whole, DVO should not be taken as one of the criteria in sub-branching, a phenomenon which predated the change by centuries. Some additional insights from the data includes 1) the possible phonetic realization of the Siamese original voiced stops, which gradually evolved from the original voiced stops into breathy stops, and eventually into voiceless aspirated stops, and 2) possible time period when of DVO in the

Early Nanjing Mandarin, where all the breathy stops turned into voiceless stops, with aspiration conditioned by the tonal category.

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Appendix

Chronological List of the Attested Transcription of Personal Names and Feudal Titles from MSL

	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
1	參烈昭毘牙 Shēnliè Zhāopíyá (1371)	สมเด็จเจ้าพญา	Samtec Cau²bñā /som4.ɗet1.tɕaw2. pʰɔ.ja:0/	Securely Interpreted
2	昭晏孤蠻 Zhāo Yàngūmán (1371)	เจ้าอินทร์กุมาร	Cau² Indrkumār /ca:w2.ʔin0.kuʔ1.ma:n0/	Securely Interpreted
3	奈思俚儕剌識悉替 Nài Sīlǐchái Làshíxītì (1372)	นายศรีชัยราชเศรษฐี	Nāy Śrījăy Rājaśreṣṭhī /na:j0.s(ə)ri:4.cʰaj0.ra:t2.cʰə.se:t1.tʰi:4/	Securely Interpreted
4	寶財賦 Bǎo Cáifù (1372)	พ่อไชย X	Bạ¹ Jai X /pʰɔ:2.cʰaj0. ? /	Partially Interpreted
5	參烈思獰 Shēnliè Sīníng (1373)	สมเด็จ X X	Samtec X X /som4.ɗet1. ? ? /	Partially Interpreted
6	昭委直 Zhāo Wěizhí (1373)	เจ้าวิชิต	Cau² Vijiṭ /ca:w2.wiʔ3.cʰit3/	Tentatively Interpreted
7	奈文隸囉 Nàiwén Lìluó (1373)	นายหมื่น X X	Nāy Hmịn¹ X X /na:j0.mɯ:n1. ? ? /	Partially Interpreted
8	參烈寶毘牙思哩哆囉祿 Shēnliè Bǎopíyá Sīlǐduòluólù (1373)	สมเด็จพ่อพญาสิรินทรลักษณ์	Samtec Bạ¹bñā Sirindralakṣṇ /som4.ɗet1.pʰɔ:2.pʰə.ja:0.siʔ1.rin0.tʰə.rə.lak3/	Securely Interpreted
9	(柰)昭穵哆囉 (Nài)zhāo Zhānduòluó (1374)	นายเจ้าจันทรา	(Nāy)-Cau² Căndrā /(na:j0).ca:w2.can0.tʰra:0/	Securely Interpreted
10	婆坤岡信 Pókūn Gāngxìn (1374)	พ่อขุนคงสิน	Bạ¹-Khun Gaṅsin /pʰɔ:2.kʰun4.kʰoŋ0.sin4/	Tentatively Interpreted

	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
11	陳舉成 Chén Jǔchéng (1374)	เฉฺรินจวี่เฉฺริง (คนจีน)	-	Foreign Name
12	沙里拔	ซฺราหลี่ป๋า (คนจีน)	-	Foreign Name

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	Shā Lǐbá (1374)			
13	昭祿群膺 Zhāo Lùqúnyīng (1374)	เจ้านครอินทร์	Cau² Nagar Indr /ca:w2.naʔ3.kʰɔ:n0.ʔin0/	Securely Interpreted
14	昭悉里直 Zhāo Xīlǐzhí (1374)	เจ้าศรี X	Cau² Śrī X /ca:w2.s(ə)ri:4 ? /	Partially Interpreted
15	奈暴崙 Nài Bàolún (1375)	นายพ่อ X	Nāy-Bạ¹ X /na:j0.pʰɔ:2. ? /	Partially Interpreted
16	詔勃羅局 Zhào Bóluójú (1375)	เจ้าพระ X	Cau² Brăḥ X /ca:w2.pʰraʔ3. ? /	Partially Interpreted
17	昭直班 Zhāo Zhíbān (1378)	เจ้า X บาล	Cau² X Pāl /ca:w2. ? .ɓa:n0/	Partially Interpreted
18	亞剌兒文智利 Yà Láérwénzhìlì (1379)	(ออก)ญาราชมนตรี	(Ạk)ñā Rājamanṯrī /(ʔɔ:k1).ja:0.ra:t2.cʰə.mon0.tri:0/	Tentatively Interpreted
19	陳子仁 Chén Zǐrén (1381)	เฉฺรินจื่อเหริน (คนจีน)	-	Foreign Name
20	板直三 Bǎnzhí Sān (1382)	บัณฑิตสม	Păṇḍiṯ Sam /ɓan0.ɗit1.som4/	Tentatively Interpreted
21	昭祿奈靄觀 Zhāo Lùnàiǎiguān (1384)	เจ้าดนัย X X	Cau² Tnăy X X /ca:w2.ɗə.naj0. ? ? /	Partially Interpreted

	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
22	昭祿巴靄 Zhāo Lùbāǎi (1385)	เจ้านภาใหญ่	Cau² Nbhā Hña̲i /ca:w2.nə.pʰa:0.jaj1/	Tentatively Interpreted
23	昭依仁 Zhāo Yīrén (1386)	เจ้ายี่ X	Cau² Yī¹ X /ca:w2.ji:2. ? /	Partially Interpreted
24	冒羅 Mào Luó (1386)	เม่าหลัว (คนจีน)	-	Foreign Name
25	坤思利濟剌試職替 Kūn Sīlìjìlàzhíshìtì (1387)	ขุนศรีชัยราชเศรษฐี	Khun Śrījăy Rājaśreṣṭhī /kʰun4.s(ə)ri:4.cʰaj0.ra:t2.cʰə.se:t1.tʰi:4/	Securely Interpreted
26	思利檀剌兒思諦 Sīlìtánlàérsīdì-tì (1389)	ศรีธรรม์ราชเศรษฐี	Śrīdhrrm Rājaśreṣṭhī /s(ə)ri:4.tʰam0.ra:t2.cʰə.se:t1.tʰi:4/	Tentatively Interpreted

27	李奈名 Lǐ Nàimíng (1391)	หลี่ไน่หมิง (คนจีน)	-	Foreign Name
28	李三齊德 Lǐsān Qídé (1393)	หลี่ซานฉีเต๋อ (คนจีน)	-	Foreign Name
29	冒勾 Mào Gōu (1394)	เม่าโกว (คนจีน)	-	Foreign Name
30	柰婆郎直事剌/悌 Nài Pólángzhíshìtì (1396)	นายพ่อหลวง X เศรษฐี	Nāy Bạ¹hlvaṅ X Śreṣṭhī /na:j0.pʰɔ:2.luəŋ4. ʔ .se:t1.tʰi:4/	Partially Interpreted
31	柰詩俚曾 Nài Shīlǐcéng (1396)	นายศรีเชิง	Nāy Śrījeiṅ /na:j0.s(ə)ri:4.cʰɤ:ŋ0/	Securely Interpreted
32	柰斯勿羅者 Nài Sīwùluózhě (1397)	นายสมุทรราชา	Nāy Samudr Rājā /na:j0.sə.mut1.ra:0.cʰa:0/	Tentatively Interpreted

	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
33	昭祿群膺哆羅/囉諦剌 Zhāo Lùqúnyīngduòluódìlà (1403)	เจ้านครอินทราธิราช	Cau² Nagar Indrādhirāj /ca:w2.naʔ3.kʰɔ:n0.ʔin0.tʰ(ə).ra:0.tʰiʔ3.ra:t2/	Securely Interpreted
34	柰靄劑剌 Nài Ǎijìlà (1403)	นายอ้ายชัยรัตน์	Nāy-Āy² Jăyraṯn /na:j0.ʔa:j2.cʰaj0.rat3/	Tentatively Interpreted
35	柰必 Nàibì (1404)	นายเพชร	Nāy Bejr /na:j0.pʰet3/	Tentatively Interpreted
36	柰靄納孛剌 Nài Ǎinàbólà (1404)	นายอ้ายนพรัตน์	Nāy-Āy² Nabaraṯn /na:j0.ʔa:j2.nop3.pʰə.rat3/	Securely Interpreted
37	曾壽賢 Zeng Shou-xian (1405)	เจิงโซ้วเสียน (คนจีน)	-	Foreign Name
38	虎都卜的毛那那 Hǔdū Bǔdìmáonànà (1406)	X X X X X X X (มุสลิม?)	-	Indecipherable
39	孛黑 Bóhè (1408)	X X	-	Indecipherable
40	虎都無霞昧 Hǔdū Wúxiámèi (1408)	X X มุฮัมหมัด (มุสลิม)	-	Foreign Name
41	柰義	นายยี่	Nāy Yī¹	Securely

	Nài Yì (1408)		/na:j0.ji:2/	Interpreted
42	柰霞侍 Nài Xiáshì (1408)	นาย X X	Nāy X X /na:j0. ? ? /	Partially Interpreted
43	柰使賴卒 Nài Shǐlàizú (1409)	นายเสด็จ X	Nāy Stec X /na:j0.sə.ɗet1. ? /	Partially Interpreted

	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
44	坤文琨 Kūnwén Kūn (1411)	ขุนหมื่น X	Khun Hmịn¹ /kʰun4.mɯ:n1. ? /	Partially Interpreted
45	柰義使 Nài Yìshǐ (1411)	นายยี่ X	Nāy Yī¹ X /na:j0.ji:2. ? /	Partially Interpreted
46	柰世賢 Nài Shìxián (1416)	นายสี่ X	Nāy Sī¹ X /na:j0.si:1. ?/	Partially Interpreted
47	三賴波磨剌札的賴 Sānlài Bōmólàzhádìlài (1416)	สมเด็จบ(ร)มราชาธิราช	Samtec Pa(ra)marājādhirāj /som4.ɗet1.ɓɔ.(ro.)mə.ra:0.cʰa:0.tʰiʔ3.ra:t2/	Securely Interpreted
48	柰叫 Nài Jiào (1418)	นายแก้ว	Nāy Keev² /na:j0.kɛ:w2/	Securely Interpreted
49	奈懷 Nài Huái (1418)	นายห้วย	Nāy Hvay² /na:j0.huəj2/	Tentatively Interpreted
50	阿哈麻 Āhāmá (1421)	X X X (มุสลิม?)	-	Foreign Name
51	坤思利亦 Kūn Sīlìyì (1422)	ขุนศรีเอก	Khun Śrī Ek /kʰun4.s(ə)ri:4.ʔe:k1/	Tentatively Interpreted
52	坤梅 Kūn Méi (1424)	ขุนมี	Khun Mī /kʰun4.mi:0/	Tentatively Interpreted
53	亞烈陳琎 Yàliè Chénbǎo (1426)	X X เฉฺรินเป่า (คนจีน)	-	Foreign Name
54	柰溫 Nài Wēn (1426)	นายอุ่น	Nāy Un¹ /na:j0.ʔun1/	Tentatively Interpreted
55	黃子順 Huáng Zǐshùn (1427)	หวงจื่อซฺรุ่น (คนจีน)	-	Foreign Name

	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
56	李得聰 Lǐ Décōng (1427)	หลี่เต๋อชง (คนจีน)	-	Foreign Name
57	奈注德事剃 Nài Zhùdéshìtì (1427)	นายโชฏึกเศรษฐี	Nāy Joṯikśreṣṭhī /na:j0.cʰo:0.tɯk1.se:t1.tʰi:4/	Securely Interpreted
58	奈勾 Nài Gōu (1428)	นาย X	Nāy X /na:j0. ? /	Partially Interpreted
59	悉里麻哈賴 Xīlǐmáhālài (1433)	ศรีมหาราช	Śrī Mahārāj /s(ə)ri:4.mə.ha:4.ra:t2/	Securely Interpreted
60	坤思利弗 Kūn Sīlìfú (1433)	ขุนศรีบุตร	Khun Śrīputr /kʰun4.s(ə)ri:4.ɓut1/	Tentatively Interpreted
61	坤思利剌者萬直 Kūn Sīlìlàzhěwànzhí (1434)	ขุนศรีราชบัณฑิต	Khun Śrī Rājapăṇṭiṯ /kʰun4.s(ə)ri:4.ra:t2.cʰə.ɓan0.dit1/	Tentatively Interpreted
62	阮靄 Ruǎn Ǎi (1434)	หรวนไอ่ (คนจีน)	-	Foreign Name
63	柰麻沙 Nài Máshā (1437)	นาย X X	Nāy X X /na:j0. ? ? /	Partially Interpreted
64	羅漸信 Luó Jiànxìn (1438)	หลัวเจี้ยนสิ้น (คนจีน)	-	Foreign Name
65	柰芘臨 Nài Pílín (1438)	นายไพลิน	Nāy Bailin /na:j0.pʰaj0.lin0/	Tentatively Interpreted
66	柰三鐸 X Nài Sānduó(mai) (1438)	นายสาม X X	Nāy Sām /na:j0.sa:m4. ? ? /	Partially Interpreted
67	坤須末柰 Kūn Xūmònài (1438)	ขุนสมุทรน้อย	Khun Samudr Naỵ² /kʰun4.sə.mut1.nɔ:j3/	Tentatively Interpreted
	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
68	谷戎有替下 Gǔróng Yǒutìxià (1444)	กรุง(อ)โยธิยา	Kruṅ (A)yodhiyā /kruŋ0.(ʔə).jo:0.tʰiʔ3.ja:0/	Securely Interpreted
69	坤沙群 Kūn Shāqún (1444)	ขุนสาคร	Khun Sāgar /kʰun4.sa:4.kʰɔ:n0/	Tentatively Interpreted
70	思利波羅麻那惹智剌	ศรีบรมนราธิราช	Śrī Paramnarādhirāj	Tentatively

	Sīlì Bōluómánàrězhìlà (1446)		/s(ə)ri:4.ɓɔ.rom0.nə.ra:0.tʰiʔ3.ra:t2/	Interpreted
71	坤普論直 Kūn Pǔlùnzhí (1446)	ขุนเพลินจิต	Khun Bleinciṯ /kʰun4.pʰlɤ:n0.tɕit1/	Tentatively Interpreted
72	柰靄 Nài Ǎi (1447)	นายอ้าย	Nāy Āy² /na:j0.ʔa:j2/	Securely Interpreted
73	坤罡悅 Kūn Gāngyuè (1453)	ขุนคงยศ	Khun Gaṅyaś /kʰun4.kʰoŋ0.jot3/	Tentatively Interpreted
74	波羅摩剌箚的剌 Bōluómólàzhādìlà (1453)	บรมราชาธิราช	Paramarājādhirāj /ɓɔ.ro.mə.ra:0.cʰa:0.tʰiʔ3.ra:t2/	Securely Interpreted
75	把囉藍米孫剌 Bǎluó Lánmǐsūnlà (1453)	พระราเมศวรราช	Brăḥ Rāmesvarrāj /pʰraʔ3.ra:0.me:0.suən4.ra:t2/	Securely Interpreted
76	馬夏抹 Mǎxiàmǒ (1457)	มุฮัมหมัด (คนมุสลิม)	-	Foreign Name
77	馬黃報 Mǎ Huángbào (1457)	หม่าหวงเป้า (คนจีน)	-	Foreign Name
78	孛剌藍囉者直波知 Bólà Lánluózhězhíbōzhī (1462)	พระรามราชาธิบดี	Brăḥ Rāmrājādhipatī /pʰraʔ3.ra:m0.ra:0.cʰa:0.tʰiʔ3.ɓɔ.dĭ:0/	Securely Interpreted
79	坤烈者捧沙 Kūn Lièzhěpěngshā (1473)	ขุนเดชพงษา	Khun Tejabaṅṣā /kʰun4.ɗe:t1.cʰə.pʰoŋ0.sa:4/	Tentatively Interpreted
	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
80	柰英者捧沙 Nài Yīngzhěpěngshā (1475)	นาย X X พงษา	Nāy X X Baṅṣā /na:j0. ? ? .pʰoŋ0.sa:4/	Partially Interpreted
81	坤貼/帖謝提 Kūn Tiēxiètí (1477)	ขุนเทพ/ทิพย์เศรษฐี	Khun Deb/Dibyśreṣṭhī /kʰun4.tʰe:p2/tʰip3.se:t1.tʰi:4/	Tentatively Interpreted
82	坤祿羣謝提 Kūn Lùqúnxiètí (1477)	ขุนนครเศรษฐี	Khun Nagarśreṣṭhī /kʰun4.naʔ3.kʰɔ:n0.se:t1.tʰi:4/	Securely Interpreted
83	柰剌捧沙 Nài Làpěngshā (1480)	นายราชพงษา	Nāy Rājbaṅṣā /na:j0.ra:t2.pʰoŋ0.sa:4/	Securely Interpreted
84	坤望群謝提 Kūn Wàngqúnxiètí (1480)	ขุนมงคลเศรษฐี	Khun Maṅgalśreṣṭhī /kʰun4.moŋ0.kʰon0.se:t1.tʰi:4/	Tentatively Interpreted
85	國隆勃剌略坤息利尤地亞 Guólóng Bólàlüèkūn Xīlìyóudìyà (1480)	กรุงพระนครศรี(อ)โยธิยา	Kruṅ Brăḥnagar Śrī(A)yodhiyā /kruŋ0.pʰraʔ3.naʔ3.kʰɔ:n0.s(ə)ri:4.(ʔə).jo:0.tʰiʔ3.ja:0/	Securely Interpreted

86	坤江悅 Kūn Jiāngyuè (1487)	ขุนคงยศ	Khun Gaṅyaś /kʰun4.kʰoŋ0.jot3/	Tentatively Interpreted
87	悶團那貼 Mèn Tuánnàtiē (1493)	หมื่น X X เทพ/ทิพย์	Hmiṇ¹ X X Deb/Dib /mɯ:n1. ? ? .tʰe:p2/tʰip3/	Tentatively Interpreted
88	挨瓦 Āi wǎ (1495)	อ้ายหว้า	Āy² Hwā² /ʔa:j2.wa:2/	Tentatively Interpreted
89	秦羅 Qín Luó (1497)	ฉินหลัว (คนจีน)	-	Foreign Name
90	萬軏 Wàn Yuè (1497)	ว่านเยว่ (คนจีน)	-	Foreign Name
91	坤明齋 Kūn Míngzhāi (1497)	ขุนมิ่งใจ	Khun Miṅ¹cai /kʰun4.miŋ2.caj0/	Securely Interpreted
	Chinese Characters & Pinyin (Attested Year)	Interpreted Siamese Equivalence	Transcription (Varasarin, 2010) Modern Pronunciation	Interpretation Status
92	坤帖米的利 Kūn Tiēmǐdìlì (1503)	ขุนเทพ/ทิพย์ไมตรี	Khun Deb/Dibymaiṯrī /kʰun4.tʰe:p2/tʰip3.se:t1.tʰi:4/	Tentatively Interpreted
93	菩巴剌智嗏 Púbālàzhìchā (1503)	ผู้ปลัด X X	Phū² Palăt X X /pʰu:2.pə.lat1. ? ?/	Partially Interpreted
94	坤思禮 Kūn Sīlǐ (1516)	ขุนศรี	Khun Śrī /kʰun4.s(ə)ri:4/	Securely Interpreted
95	坤思悅喇者束的利 Kūn Sīyuèlǎzhěshùdìlì (1527)	ขุนศรียศราชา X X X	Khun Śrīyaśrājā X X X /kʰun4.s(ə)ri:4.jot3.ra:0.cʰa:0. ? ? ?/	Partially Interpreted
96	勃罢坤息利尤池呀 Bólüèkūn Xīlìyóuchíya (1554)	พ(ระ)นครศรี(อ)โยธิยา	B(răḥ)nagar Śrī(A)yodhiyā /pʰ(raʔ3).naʔ3.kʰɔ:n0.s(ə)ri:4.(ʔə).jo:0.tʰiʔ3.ja:0/	Securely Interpreted
97	坤應命的類 Kūn Yīngmìngdìlèi (1559)	ขุน X X ตรี	Khun X X Ṯrī /kʰun4. ? ? .tri:0/	Partially Interpreted
98	華招宋 Huázhāosòng (1573)	หัวเจ้าทรง	Hvacau²draṅ /huə4.tɕaw2.soŋ0/	Tentatively Interpreted
100	牛達喇 Niú Dálā (1591)	หนิว ต๋าลา (คนจีน)	-	Foreign Name
101	握坤喇柰邁低釐 Wòkūn Lǎnàimàidīlí (1612)	ออกขุน X ในไมตรี	Ạkkhun X Naimaiṯrī /ʔɔ:k1.kʰun4. ? .naj0.maj0.tri:0/	Partially Interpreted

102	普埃 Pǔ Āi (1612)	ผู้ใหญ่	Phū²hñai¹ /pʰu:2.jaj1/	Securely Interpreted
103	森烈怕臘 Sēnliè Pàlà (1623)	สมเด็จพระ	Samtec Brăḥ /som4.ɗet1.pʰraʔ3/	Securely Interpreted